

**Amendments to the Claims:**

1. (Currently Amended) A computer-implemented method of searching hypotheses for locations of objects in a playback image corresponding to a recorded image generated by a graphical user interface (GUI) of an application program comprising:

capturing the a selected playback image, the playback image being one of a series of display images generated over time by a graphical user interface (GUI) of an application program being tested by a cognitive control framework (CCF) system in a playback phase in response to simulated user inputs to the application program;

detecting at least one active display object in the a recorded image, the recorded image being one of a series of display images generated over time by the GUI of the application program being tested and captured during a recording phase of the CCF system based on user inputs to the application program, the user inputs, time interval between user inputs, and resulting display data forming an execution scenario script for use in testing the GUI of the application program during the playback phase for generating playback images, the at least one active display object being a portion of the recorded image being acted upon as a result of user input;

searching subsets of hypotheses of locations of display objects in from the captured playback image for an a matching display object corresponding to the detected at least one active display object of the recorded image according to predetermined criteria;

recalculating old actions for the matching display object in the playback image by applying actions according to an the execution scenario script and loading a next set of data, when the corresponding matching display object is found; and

checking dynamic conditions, including the time between user inputs.

2. (Currently amended) The method of claim 1, further comprising repeating the capturing, detecting, searching, recalculating, and checking for each of a series of both of

the playback and recorded images according to the execution scenario script to automatically test the GUI of the application program.

3. (Currently Amended) The method of claim 1, wherein searching comprises performing a first search using the predetermined criteria of content and layout of display objects in the GUI of the application program under test.

4. (Currently Amended) The method of claim 1, wherein searching comprises performing a first search using the predetermined criteria of size and distance of display objects in the GUI of the application program under test.

5. (Currently Amended) The method of claim 1, wherein searching comprises performing a second search using the predetermined criteria of content and sizes of objects in the GUI of the application program under test.

6. (Currently Amended) The method of claim 1, wherein searching comprises performing a second search using the predetermined criteria of layout and distances in the GUI of the application program under test.

7. (Currently Amended) The method of claim 1, wherein searching comprises performing a third search using the predetermined criteria of content and sizes of additional objects, and layout of display objects in the GUI of the application program under test.

8. (Currently Amended) The method of claim 1, wherein searching comprises performing a third search using the predetermined criteria of sizes of active objects and distances in the GUI of the application program under test.

9. (Currently Amended) The method of claim 1, wherein searching comprises performing a third search using the predetermined criteria of content for active objects in the GUI of the application program under test.

10. (Currently Amended) An article comprising: a machine ~~accessible~~ readable medium containing instructions, which when executed, result in searching hypotheses for locations of objects ~~in a playback image corresponding to a recorded image generated by a graphical user interface (GUI) of an application program by~~  
~~capturing the playback image;~~  
~~detecting at least one active object in the recorded image;~~  
~~searching subsets of hypotheses from the playback image for an object according to predetermined criteria;~~  
~~recalculating old actions for the object in the playback image by applying actions according to an execution scenario and loading a next set of data, when the object is found; and~~  
~~checking dynamic conditions.~~  
capturing a selected playback image, the playback image being one of a series of display images generated over time by a graphical user interface (GUI) of an application program being tested by a cognitive control framework (CCF) system in a playback phase in response to simulated user inputs to the application program;  
detecting at least one active display object in a recorded image, the recorded image being one of a series of display images generated over time by the GUI of the application program being tested and captured during a recording phase of the CCF system based on user inputs to the application program, the user inputs, time interval between user inputs, and resulting display data forming an execution scenario script for use in testing the GUI of the application program during the playback phase for generating playback images, the at least one active display object being a portion of the recorded image being acted upon as a result of user input;  
searching subsets of hypotheses of locations of display objects in the captured playback image for a matching display object corresponding to the detected at least one active display object of the recorded image according to predetermined criteria;

recalculating old actions for the matching display object in the playback image by applying actions according to the execution scenario script and loading a next set of data, when the corresponding matching display object is found; and  
checking dynamic conditions, including the time between user inputs.

11. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a first search using the predetermined criteria of content and layout of display objects in the GUI of the application program under test.

12. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a first search using the predetermined criteria of size and distance of display objects in the GUI of the application program under test.

13. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a second search using the predetermined criteria of content and sizes of objects of display objects in the GUI of the application program under test.

14. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a second search using the predetermined criteria of layout and distances of display objects in the GUI of the application program under test.

15. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a third search using the predetermined criteria of content and sizes of additional objects, and layout of display objects in the GUI of the application program under test.

16. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a third search using the predetermined criteria of sizes of active objects and distances of display objects in the GUI of the application program under test.

17. (Currently Amended) The article of claim 10, wherein instructions to search comprise instructions to perform a third search using the predetermined criteria of content for active objects of display objects in the GUI of the application program under test.

18. (Currently Amended) A cognitive control framework (CCF) system for automatically controlling execution of an application program under test having a graphical user interface comprising:

a recording component adapted to capture user input data and images displayed by the GUI graphical user interface during a recording phase of execution of the application program being tested, and to analyze the captured user input data and displayed images to generate an execution scenario script during the recording phase, and

a playback component adapted to perform image analysis on images displayed by the GUI graphical user interface as a result of processing the simulated user input data during the a playback phase and captured displayed images from the recording phase, the playback component being adapted to search hypotheses for locations of objects in a playback image corresponding to a recorded image by

~~capturing the playback image;~~

~~detecting at least one active object in the recorded image;~~

~~searching subsets of hypotheses from the playback image for an object according to predetermined criteria;~~

~~recalculating old actions for the object in the playback image by applying actions according to an execution scenario and loading a next set of data, when the object is found; and~~

~~checking dynamic conditions.~~

capturing a selected playback image, the playback image being one of a series of display images generated over time by the GUI of the application program being tested by the CCF system in the playback phase in response to simulated user inputs to the application program;

detecting at least one active display object in the recorded image, the recorded image being one of a series of display images generated over time by the GUI of the

application program being tested and captured during a recording phase of the CCF system based on user inputs to the application program, the at least one active display object being a portion of the recorded image being acted upon as a result of user input; searching subsets of hypotheses of locations of display objects in the captured playback image for a matching display object corresponding to the detected at least one active display object of the recorded image according to predetermined criteria; recalculating old actions for the matching display object in the playback image by applying actions according to the execution scenario script and loading a next set of data, when the corresponding matching display object is found; and checking dynamic conditions, including the time between user inputs.

19. (Currently Amended) The system of claim 18, wherein searching comprises performing a first search using the predetermined criteria of content and layout of display objects in the GUI of the application program under test.

20. (Currently Amended) The system of claim 18, wherein searching comprises performing a first search using the predetermined criteria of size and distance of display objects in the GUI of the application program under test.

21. (Currently Amended) The system of claim 18, wherein searching comprises performing a second search using the predetermined criteria of content and sizes of objects of display objects in the GUI of the application program under test.

22. (Currently Amended) The system of claim 18, wherein searching comprises performing a second search using the predetermined criteria of layout and distances of display objects in the GUI of the application program under test.

23. (Currently Amended) The system of claim 18, wherein searching comprises performing a third search using the predetermined criteria of content and sizes of

additional objects, and layout of display objects in the GUI of the application program under test.

24. (Currently Amended) The system of claim 18, wherein searching comprises performing a third search using the predetermined criteria of sizes of active objects and distances of display objects in the GUI of the application program under test.

25. (Currently Amended) The system of claim 18, wherein searching comprises performing a third search using the predetermined criteria of content for active objects of display objects in the GUI of the application program under test.